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EXAMINER	
JOO, JOSHUA	

ART UNIT	PAPER NUMBER
2154	

DATE MAILED: 10/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/973,783	BUNN ET AL.	
	Examiner	Art Unit	
	Joshua Joo	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 September 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 October 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/6/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Remarks filed 9/6/2006

1. Claims 1-11 are presented for examination.

Response to Arguments

2. Applicant's arguments filed 9/6/2006 have been fully considered but they are not persuasive. Applicant argued that:

3. (1) Denenberg [US Patent #5,537,551] does not teach building a data compression dictionary based on frequently occurring data strings transmitted from subscriber-side equipment-namely, cable modems. The "objects" of Deneberg are generated by a service provider and cached during transmission to subscriber equipment (e.g. reception systems 40).

4. In response, Denenberg teaches of building a compression dictionary based on frequently occurring objects on the network (Col 14, lines 28-41), wherein the objects are "supplied on demand from various storage facilities within the network; e.g. reception systems 40, caches 46, database 44 of host server 26" (Col 14, lines 51-56). Denenberg clearly teaches that the objects may be transmitted from the reception systems 40 in addition to sections of Denenberg that teach of transmitting objects to the reception systems 40. Therefore, Denenberg teaches of building a compression dictionary based on frequently occurring objects transmitted from subscriber-side equipment (e.g. receptions systems 40).

As stated in the previous Office Action, Deneberg does not teach of transmitting data specifically by a plurality of cable modems in a DOCSIS network. Chapman [US Patent #6,438, 123] teaches of transmitting and receiving data by a plurality of cable modems in a DOCSIS network (Fig. 1; Col 1, lines 39-45; Col 3, lines 25-57), wherein the data is compressed (Col 7, lines 42-49, 59-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Denenberg with the teachings of Chapman because both teachings deal with data compression to improve network efficiency. Furthermore, the teachings of Chapman to transmit and receive compressed

data by a plurality of cable modems in a DOCSIS network would improve the teachings of Denenberg by providing compression and decompression to reduce transmission and storage requirements in different types of network such as in the cable modem network as taught by Chapman.

Drawings

5. As set forth in the previous Office Action, the drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Step 615 is missing from Fig. 6. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Information Disclosure Statement

6. The information disclosure statement (IDS) submitted 9/6/2006 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Denenberg, in view of Chapman.

9. As per claim 1, Denenberg teaches substantially the invention as claimed including a method for generating a data compression dictionary in a network, Denenberg's teachings comprising:

i. identifying a plurality of frequently occurring data strings transmitted by a plurality of nodes in the network (Fig. 1. Subscribers. Abstract; Col 14, lines 27-37, 51-56; Col 16, lines 12-21. Identify frequently occurring objects send by subscribers.);

ii. assigning a token to represent each one of the plurality of frequently occurring data strings (Abstract; Col 19, lines 41-63; Col 24, lines 8-24. Assign code word to repeating bytes.);

iii. entering each one of the plurality of frequently occurring data strings and each token assigned to represent each one of the plurality of frequently occurring data strings into a lookup table to produce a data compression dictionary (Col 14, lines 28-37; Col 18, lines 10-35; Col 20, lines 45-67. Build lookup table for compression.); and

iv. transmitting the data compression dictionary to the plurality of nodes in the network (Claim 6; Col 15, lines 51-59; Col 16, lines 22-33. Transmit compression table to subscribers.).

10. Denenberg teaches substantial features of the claimed invention. However, Deneberg does not teach of transmitting data by a plurality of cable modems in a DOCSIS network.

11. Chapman teaches of transmitting and receiving data by a plurality of cable modems in a DOCSIS network (Fig. 1; Col 1, lines 39-45; Col 3, lines 25-57), wherein the data is compressed (Col 7, lines 42-49, 59-67).

12. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Denenberg with the teachings of Chapman because both teachings deal with data compression to improve network efficiency. Furthermore, the teachings of Chapman to transmit and receive compressed data by a plurality of cable modems in a DOCSIS network would improve the teachings of Denenberg by providing compression and decompression to reduce transmission and storage requirements in different types of network such as in the cable modem network as taught by Chapman.

13. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoh, US Publication #2002/0029206 (Satoh hereinafter), in view of Denenberg and Chapman.

14. As per claim 3, Satoh teaches substantially the invention as claimed including a method for transmitting compressed data packets in a network, Satoh's teaching comprising the steps of:

i) receiving a plurality of data packets for transmission, wherein each of said data packets has a payload portion comprised of one or more data strings (Paragraph 0475; 0507. Receive data strings.);

ii) identifying which of said data packets has a payload portion that can be compressed (Paragraph 0211; 0476; 507. Identify data to be compressed.);

iii) for each of said data packets identified in said step (b), replacing each of said one or more data strings contained in said payload portion with a token from said data compression dictionary assigned to represent said one or more data strings (Paragraph 0474-0476; 0507-0508. Use compression dictionary to code frequently occurring strings.);

iv) appending a compression indicator to each of said tokens within each of said data packets (Paragraph 0475; 0483; 0515. Identify codes for decompression based on the code and dictionary. Indicator is essential to identify compressed portions.); and

v) transmitting said data packets (Paragraph 0515. Receives compressed data.).

15. Satoh teaches substantial features of the claimed invention. However, Satoh does not teach of a compression dictionary tuned to data transmitted by a plurality of cable modems on the DOCSIS network and transmitting said data packets within a DOCIS service identifier.

16. Denenberg teaches of generating and using a compression table based on data transmitted by a plurality of nodes (Abstract; Col 14, lines 28-37, 51-56; Col 15, lines 51-61).

17. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Satoh and Denenberg because both teachings deal with data compression in a network. Furthermore, the teachings of Denenberg to generate and use a compression table based on data transmitted by a plurality of nodes would improve the teachings of Satoh by providing a compression table that is able to provide services to a larger number of users without increasing computing resources while allowing for changes according to data transmitted in the network (Abstract; Col 5, lines 36-61).

18. Chapman teaches of transmitting and receiving data by a plurality of cable modems in a DOCSIS network (Fig. 1; Col 1, lines 39-45; Col 3, lines 25-57), wherein the data is compressed (Col 7, lines 42-49, 59-67).

19. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Satoh, Denenberg, and Chapman because all three teachings deal with data compression in a network. Furthermore, the teachings of Chapman to transmit and receive compressed data by a plurality of cable modems in a DOCSIS network would improve the system of Satoh and Denenberg by providing compression and decompression to reduce transmission and storage requirements in different types of network such as in the cable modem network.

20. As per claim 7, Satoh teaches substantially the invention as claimed including the method for decompressing data transmitted over a network, Satoh's teachings comprising the steps of:

i. receiving a plurality of data packets transmitted within a network, wherein each of said data packets has a payload portion (Paragraph 0483; 0515. Receives compressed data.);

ii. identifying each of said plurality of data packets having a compression indicator appended to one or more tokens within said payload portion (Paragraph 0483; 0515. Decompression based on identifying compressed data and dictionary.); and

iii. for each of said data packets identified in said step (b), replacing each of said one or more tokens contained within said payload portion with a data string assigned to represent said one or more tokens found in a data compression dictionary (Paragraph 0483-0485; 0515-0156. Decodes compressed data based on compression dictionary.).

21. Satoh teaches substantial features of the claimed invention. However, Satoh does not teach receiving a plurality of data packets transmitted within a DOCIS identifier; and a data compression dictionary tuned to data transmitted by a plurality of cable modems on a DOCSIS network.

22. Denenberg teaches of generating and using a compression table based on data transmitted by a plurality of nodes (Abstract; Col 14, lines 28-37, 51-56; Col 15, lines 51-61).

23. Motivation for combination is similar to the rejection of claim 3. See paragraph 17.

24. Chapman teaches of transmitting and receiving data by a plurality of cable modems in a DOCSIS network (Fig. 1; Col 1, lines 39-45; Col 3, lines 25-57), wherein the data is compressed (Col 7, lines 42-49, 59-67).

25. Motivation for combination is similar to the rejection of claim 3. See paragraph 19.

26. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Denenberg and Chapman, in view of Carr, US Patent #5,293,379 (Carr hereinafter).

27. As per claim 2, Denenberg teaches of generating a compression table tuned to a network with a plurality of nodes. However, Denenberg does not teach the method of claim 1, further comprising repeating steps i.-iv for each of a plurality of DOCSIS networks, thereby generating a plurality of data compression dictionaries, each of which is individually tuned for a corresponding one of the plurality of DOCIS networks.

28. Carr teaches of generating a plurality of user-data dictionaries (Col 7, lines 43-44).

29. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Denenberg, Chapman, and Carr because the teachings of Carr to generate a plurality of dictionaries would improve the system of Denenberg and Chapman by improving the probability that user data appearing in succeeding packets will be efficiently compressed (Col 7, lines 42-46). Even though Denenberg and Carr do not teach of a plurality of networks, it would have been obvious to one of ordinary skill that different compression tables may be generated based on frequently transmitted data for more than one network, and users may be located in different networks to receive dictionaries. Doing so would enhance the system of Denenberg, Chapman, and Carr by increasing the usability of the system.

30. Chapman teaches of a plurality of cable modems in a DOCSIS network (Fig. 1; Col 1, lines 39-45; Col 3, lines 25-57).

31. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Denenberg, Chapman, and Carr because the teachings of Chapman of a plurality of cable modems would improve the system of Satoh by providing compression and decompression to reduce transmission and storage requirements in different types of network such as the DOCIS network.

32. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Denenberg and Chapman, in view of Satoh.

33. As per claim 10, Denenberg teaches of compression method that may be updated to accommodate to changes in the data transmitted (Col 5, lines 49-52). However, Denenberg does not teach the method further comprising: v. updating the data compression dictionary; and vi. transmitting the updated data compression dictionary to a plurality of cable modems in the DOCSIS network.

34. Satoh teaches of updating the data compression dictionary (Paragraph 0362; 0507-509); and transmitting the updated data compression dictionary (Paragraph 0515.).

35. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Denenberg, Chapman, and Satoh because the teachings of Satoh to update compression dictionary and transmit the updated data compression dictionary would improve the system of Denenberg and Chapman by would allow users to compress and decompress data based on the current data in the network.

36. Chapman teaches of transmitting data by a plurality of cable modems in a DOCSIS network (Fig. 1; Col 1, lines 39-45; Col 3, lines 25-57).

37. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Denenberg, Chapman, and Satoh because the teachings of Chapman to transmit data to a plurality of cable modems in a DOCSIS network would improve the system of Satoh by providing efficiency data compression based on a dictionary for a network with cable modems.

38. Claims 4-5 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoh, Denenberg, and Chapman, in view of Eller #5,737,733 (Eller hereinafter).

39. As per claims 4 and 8, Satoh does not teach the method of claims 3 and 7 wherein the token is a binary string.

40. Eller teaches of compression based on a dictionary, wherein a code is binary (Col 3, lines 37-42; Col 4, lines 1-6).

41. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Satoh, Denenberg, Chapman, and Eller because the teachings of Eller to use binary codes for compression would improve the system of Satoh, Denenberg, and Chapman by providing a small unit of data for representation, which would reduce the amount of data transmitted.

42. As per claims 5 and 9, Satoh does not teach the method of claims 3 and 7, wherein the compression indicator indicates the length of the binary string.

43. Eller teaches of compression based on a dictionary, wherein the compression indicator indicates the length of the binary string (Col 20, lines 55-63).

44. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Satoh, Denenberg, Chapman, and Eller because the teachings of Eller to use a

compression indicator that indicates the length of binary code would improve the system of Satoh, Denenberg, and Chapman by providing an additional method of compression and decompression by determining and matching the length of the string with the length indicator (Col 22, lines 30-47).

45. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satoh, Denenberg, and Chapman, in view of Chu, US Patent #5,530,645 (Chu hereinafter).

46. As per claim 6, Satoh does not teach the method of claim 3 wherein said data compression dictionary is pre-defined and fixed.

47. Chu teaches of a dictionary compression, wherein the dictionary is predefined and fixed (Col 2, line 57-Col 3, line 21).

48. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Satoh, Denenberg, Chapman, and Chu because the teachings of Chu to use a predefined and fixed dictionary would improve the system of Satoh, Denenberg, and Chapman by providing efficient data compression for detecting and matching known data strings (Col 2, lines 4-8; Col 3, lines 22-41).

49. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Denenberg and Chapman, in view of Konno et al, US Patent #6,078,955 (Konno hereinafter).

50. As per claim 11, Denenberg teaches of transmitting data compression dictionary to a node. However, Denenberg does not teach not teach the method of claim 1, further comprising: transmitting the data compression dictionary to a new cable modem responsive to the new cable modem being connected to the DOCSIS network.

51. Konno teaches the concept of detecting the presence of newly connected device and transmitting information to the device (Col 2, lines 44-54).

52. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Denenberg, Chapman, and Konno because the teachings of Konno to transmit data to a newly connected device would improve the system of Denenberg and Chapman by allowing the newly added device to utilize the resources that available in the computer system (Col 2, lines 51-54), and in this case, allowing the terminal to compress and decompress data to improve efficiency.

Conclusion

53. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

54. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua Joo whose telephone number is 571 272-3966. The examiner can normally be reached on Monday to Friday 7 to 4.

55. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A. Follansbee can be reached on 571 272-3964. The fax phone number for the organization where this application or proceeding is assigned 571-273-8300.

56. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

September 27, 2006
JJ

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